

Effect of Incandescent Bulbs Emitted Light Colours on Performance, Gathering Density and Behaviour of Broiler Chicks during Brooding Period

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Light influences health, behaviour, welfare and production of broilers. Performance during brooding period affects the future production. Objective of the study was to investigate how incandescent bulbs (60 Lux; 60W) emitted primary light colours [blue, green, red and white/yellow normal light (Control)] affect the performance, gathering density (GD), mortality and behaviour of brooding chicks. Broiler chicks of strain Cobb-500 (n=144) were subjected to the experiment. Light colour (LC) treatments were replicated 6 times adopting completely randomized design. Brooder cages (n=24) were assigned with birds by balancing weights (40.87g±6). Feed intake (FI), water intake (WI), mortality were recorded daily. Weight gain (WG) was recorded weekly. Behaviour and GD were recorded daily covering three sessions; morning, evening and night. Common behaviours (18); lying, eating, drinking, standing, standing on feeders/drinkers, walking, wing/leg stretching, sleeping, wing flapping, feather pecking, vocalizing, running, litter eating, dozing, body shaking, bird interaction, excretion, other behaviours were examined for 14 days. Mean comparison was done using one way ANOVA. Walking was significantly affected ($p < 0.05$) by LC where red treated chicks performed the highest walking and blue treated chicks showed the lowest. However, most of the behaviours were not significantly affected ($p > 0.05$). Though WG was not significantly affected ($p > 0.05$), maximum ($515.42 \pm 7 \text{ g bird}^{-1}$) and minimum ($494.44 \pm 11 \text{ g bird}^{-1}$) WG was recorded with blue and red LCs, respectively. Though Feed Conversion Ratio (FCR) was not significantly affected ($p > 0.05$), the highest FCR was recorded in red (1.67 ± 0) and the lowest was recorded in blue (1.51 ± 0). Interaction (LC×Session) was significantly affected ($P < 0.05$) the GD of chicks during first week. The highest GD was recorded in blue (64.46 ± 4) while the lowest was recorded in yellow (49.04 ± 4). It is concluded that the performance, mortality, WI, FI were not affected by brooding LC. As red exposed birds showed increased walking, feeder spaces can be expanded for red light brooded chicks while blue light brooding is more suitable for limited spaces as gathering is higher under blue.

Keywords: *Behaviour, Broiler Chicks, Brooding, Gathering Density, Performance*